

IN THE ABSTRACT:

Please amend the Abstract as indicated below:

A method and apparatus are disclosed for performing joint equalization and decoding of multidimensional codes transmitted over multiple symbol durations. An RSSE scheme is disclosed that cancels the intrasymbol interference caused by other symbol components within the same multidimensional code symbol. The disclosed RSSE technique for multidimensional codes applies where the number of trellis code dimensions exceeds the number of channels. The disclosed RSSE decoder computes the intersymbol interference caused by previously decoded multidimensional code symbols and subtracts the intersymbol interference from the received signal. In addition, a branch metrics unit compensates for the intrasymbol interference caused by other symbol components within the same multidimensional code symbol. In addition, the disclosed RSSE decoder compensates for the intrasymbol interference caused by other symbol components within the same multidimensional code symbol. ~~The disclosed RSSE decoder for 4D TCM includes 2D branch metric units (2D-BMU) that calculate the 2D branch metrics for the two wire pairs based on the received 2D signals. The 2D-BMUs compensate for intrasymbol interference caused by other symbol components within the same multidimensional code symbol. In addition, the decision feedback unit (DFU) in the RSSE decoder processes the survivor symbols from the survivor memory unit (SMU) to calculate the intersymbol interference estimates for all code states and channels, which are used by the 2D-BMUs to calculate the 2D branch metrics.~~